8054.010NPUS00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	) **BEFORE THE BOARD OF PATENT**
	) **APPEALS AND INTERFERENCES**
Alistair Edwin MAY	)
	) Appeal No.:
Serial No. 10/620,811	)
	) Examiner: Stephen G. Sherman
Filed: July 17, 2003	)
	) Group Art Unit: 2629
For: DETECTING DEVICE USAGE	)
	) January 5, 2007

BRIEF ON APPEAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This is an appeal from the final rejection of claims 1-20 of the above-identified application, which claims were finally rejected in the Office action dated July 24, 2006. A Notice of Appeal was timely filed on October 24, 2006. Pursuant to the Notice of Panel Decision from Pre-Appeal Brief Review dated December 5, 2006, the time period for filing this Brief has been reset to January 5, 2007.

REAL PARTY IN INTEREST

The real party in interest in this case is Cambridge Silicon Radio Ltd. of Cambridge, United Kingdom.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences, which would have any direct or indirect affect on the Board's decision in the present appeal.

STATUS OF THE CLAIMS

Claims 1-20 are pending in the application and stand finally rejected. Claims 1, 15 and 20 constitute the independent claims on appeal. This appeal is directed to claims 1-20.

STATUS OF AMENDMENTS

No proposed amendment after final has been filed in this application.

SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention relates generally to the field of radio-capable devices such as a wireless computer input device or "mouse" and more particularly to such a radio-capable device that has a low-power or standby mode and a detector for detecting activity that indicates that the device should be switched to a normal operating mode.

In accordance with the claimed invention as set forth in claim 1, a radio-capable device such as a wireless mouse 1 has a data collection unit 9 as shown in Fig. 2, which collects data such as motion data from sensors 7 and 8. The mouse 1 further includes a transceiver or radio communication unit 10 for transmitting over a radio

channel data from the data collection unit 9. The mouse 1 further includes a radio channel sensor or activity detector 29 located within transceiver 10 for sensing at least one physical characteristic of the radio channel, and arranged to cause the data collection unit 9 to enter a normal operating mode if the physical characteristic meets a pre-set threshold, by sending to the unit 9 a signal over connection 30 to a dedicated activity signal input 31.

The operation of the device is set forth at page 5, line 1 to page 6, line 26. In particular, it is explained that the activity detector 29 monitors the receive channel while the transceiver is transmitting data such as radio connection protocol data in order to maintain a radio link with computer 11. This would be done when the transceiver is not transmitting application data such as motion data, in other words, when the device is in a low-power or standby mode.

It is further explained in the specification at the passage cited above that the radio channel sensor senses a physical characteristic of the radio channel such as reflection, attenuation or proximity detuning, which may change by virtue of the device coming into proximity with nearby objects, such as when the device is being moved by a user. Reflection causes radio signal changes due to reinforcement or cancellation of a transmitted signal by reflection from a nearby object. Attenuation causes radio signal changes by absorption from a nearby object. Proximity detuning reduces the efficiency of the antenna due to the presence of a nearby object, which changes the standing wave ratio (SWR) of the antenna and thereby affecting the voltage at the transceiver

terminals. In each case, a change in reception of a signal by more than a preset amount in a preset time is taken to indicate activity. This is referred to in claim 1 as the physical characteristic of the radio channel meeting a preset threshold.

The invention set forth in independent claim 15 is substantially similar to claim 1, except reciting that the radio channel sensor senses a change in at least one physical characteristic of the radio channel that is indicative of use of the device by a user, and arranged to cause the data collection unit to enter the normal operating mode from the low-power mode upon sensing of such change. This is described in the specification at page 6, lines 17-20, wherein it is disclosed that a change in reception of a signal by more than a preset amount in a preset time is suitably taken to indicate activity.

The invention set forth in independent claim 20 requires a transceiver capable of transmitting and receiving signals over a wireless communication channel (see Fig. 2, transceiver 10), and a wireless communication channel sensor coupled to the transceiver (see Fig. 2, activity detector 29) for sensing a change in at least one physical characteristic of signals received over the wireless channel that is indicative of use of the device by a user, and arranged to cause the wireless device to enter a normal operating mode from a low-power mode upon sensing of such change. This is described in the specification at page 5, line 20 to page 6, line 26.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

This appeal presents the following issues for review by the Board:

1) Whether claims 1-3, 6, 13, 15-17 and 20 are unpatentable under 35 U.S.C. § 102(e) as being anticipated by Junod, U.S. Pub. No. 2002/0126094, and are properly rejected on that basis;

2) Whether claims 4, 5 and 14 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Junod, and are properly rejected on that basis; and

3) Whether claims 7-12, 18 and 19 are unpatentable under 35 U.S.C. § 103(a) as being obvious over Junod in view of Hinckley et al. U.S. Pub. No. 2002/0021278, and are properly rejected on that basis.

ARGUMENT

The Rejection of Claims 1-3, 6, 13, 15-17 and 20 Is Improper

Junod discloses the use of a "hand detection" circuit with an input device such as a mouse, which senses the presence of a user's hand on the mouse by detecting a change in capacitance or inductance of a common antenna also used for transmitting/receiving RF signals. See Fig. 7 and paragraph 0044. Junod fails to anticipate any of claims 1-3, 6, 13, 15-17 or 20, and this ground of rejection therefore should be reversed.

1) Junod Does Not Sense a Physical Characteristic of a Radio Channel

The capacitance or inductance of an antenna is not a physical characteristic of a radio channel, as required by the claims. In particular, Junod discloses that a switch 130 switches a capacitor 132 and RF circuit 128 into contact with the antenna electrodes during antenna mode, and switches hand detect circuit126 into contact with the antenna electrodes during a sleep mode. In such configuration, the antenna when used to sense the presence of a user's hand cannot be used to detect any characteristic

of a radio channel, as the RF circuit would be disconnected from the antenna in this mode. This conclusively establishes that Junod does not contemplate or teach the detection of a change in a characteristic of a radio channel to cause the entering of a normal mode of operation of a device as required by the pending claims, but to the contrary teaches the detection of a change in capacitance or inductance of a common antenna as being indicative of the presence of a user's hand on the device.

The final rejection does not dispute that the capacitance or inductance of an antenna is not a physical characteristic of a radio channel as claimed. Instead, the final rejection states that Junod's hand detector must communicate with the RF circuit to cause it to "wake up," and therefore the hand detector must be capable of sending RF signals otherwise the RF circuit would not be able to identify the wake-up signal. See Final Office action, pp. 2-3. In addition to being in error, this assertion fails to establish a *prima facie* case of anticipation, since it is not shown that the alleged capability of the hand detector circuit to send RF signals equates to sensing of a physical characteristic of a radio channel. This assertion is incorrect for the following reasons.

First, Junod nowhere discloses that the hand detector transmits RF signals to the RF circuit. Instead, the hand detection circuit communicates with the pointing device microcontroller, which then brings the device out of the idle state by restoring full power operation (see paragraphs 0031 and 0032). Therefore, the final rejection's assertion that the hand detection circuit sends a signal to the RF circuit is simply incorrect as a matter of fact.

Second, even if the hand detection circuit did communicate with the RF circuit, such communication would not be by way of RF signals. The hand detection circuit and the RF circuit are contained in the same input device and therefore any communication between internal circuit modules would be achieved by transmission of direct signaling over hardwired connections. Merely because the RF circuit is capable of detecting RF signals from the antenna, it does not follow that the RF circuit can communicate with

other internal circuit components only by RF signals, as appears to be asserted in the final rejection.

Third, even if the hand detection circuit were capable of transmitting RF signals, it simply does not follow that the hand detection circuit must detect a physical characteristic of the radio channel as claimed.

The final rejection further alleges that the invention as claimed requires "merely that the radio communication unit transmits the movement and button presses of the mouse. The radio communication unit does not need to receive the incoming radio signals from the antenna." See final Office action at page 3. The final rejection is incorrect, because claim 1 requires a radio channel sensor coupled to the radio communication unit for sensing at least one physical characteristic of the radio channel, and arranged to cause the data collection unit to enter the normal operating mode if the physical characteristic meets a pre-set threshold. Consequently, claim 1 requires reception by the radio communication unit of the radio channel in order for the radio channel sensor to detect a physical characteristic of the radio channel. The claims do not mention transmitting of "movement and button presses of the mouse" as asserted by the final rejection.

2) Junod Does Not Disclose a Preset Threshold As Claimed in Claim 1

The final rejection states that "[t]he examiner interprets that since the inputs are compared to a reference threshold that if this value is exceeded the device will change operating modes," referencing paragraphs 0024-0025 and 0046 of Junod. The cited paragraphs of Junod fail to disclose the limitation of claim 1 requiring the data collection unit to enter the normal operating mode if the sensed physical characteristic of the radio channel meets a preset threshold.

The "reference threshold" mentioned in Junod is used to determine how long it takes for the capacitance connected to the measurement node of the hand detector circuit to charge or discharge. This "reference threshold" however is not used to determine whether to power up the mouse to full power mode. Instead, it is the contrast between the capacitance measured when the user's hand is in proximity to the electrode and the

capacitance when the user's hand is not near, that is indicative of whether the user's hand is touching the mouse.

3) Junod Does Not Disclose Sensing a Change in Physical Characteristic As Claimed in Claim 15

Claim 15 requires a radio channel sensor coupled to the radio communication unit for sensing a change in at least one physical characteristic of the radio channel that is indicative of use of the device by a user. The final rejection fails to establish a *prima facie* case of anticipation with respect to this limitation. The final rejection states that "if an antenna was used to detect the presence of a hand as stated in paragraph [0049] that the sensor would be a radio channel sensor.) *(sic)* coupled to the radio communication unit for sensing a change in at least one physical characteristic that is indicative of use of the device by a user (Paragraph [0049]. *(sic)* The examiner interprets that if the antenna is used to detect the presence of a hand presence *(sic)* to wake up the device from the sleep mode that it would have to sense a characteristic of the radio channel." See Final Rejection at 6.

Paragraph 0049 of Junod discloses nothing regarding sensing of any change in physical characteristic of a radio channel as required by claim 15. Instead, this paragraph discloses the alternate use of an inductive antenna to detect hand presence.

4) Junod Does Not Disclose Sensing a Change in Physical Characteristics of Received Signals As Claimed in Claim 20

Claim 20 requires a wireless communication channel sensor coupled to the transceiver for sensing a change in at least one physical characteristic of signals received over the wireless channel that is indicative of use of the device by a user. The final rejection utterly fails to establish even a *prima facie* case of anticipation with respect to claim 20. Instead, the final rejection simply repeats verbatim the statements made with respect to claim 15.

As a matter of fact, Junod is devoid of any teaching that physical characteristics of signals received over a wireless channel are sensed, much less any changes in such signals indicative of use of the device by a user.

Additionally, Junod fails to disclose the specific further limitations of dependent claims 16 and 17, which set forth that the change in physical characteristic of the radio channel comprises a change in received signal level and change in received signal level by more than a predetermined amount, respectively. The final rejection fails to establish a *prima facie* case of anticipation with respect to these claims.

The Rejection of Claims 4, 5 and 14 Is Improper

Claims 4, 5 and 14 each ultimately depend from claim 1 and are not rendered obvious by Junod for at least the reasons explained above with respect to claim 1. As such, this ground of rejection is improper and should be reversed.

The Rejection of Claims 7-12, 18 and 19 Is Improper

The rejection of claims 7-12, 18 and 19 under 35 U.S.C. § 103(a) as being unpatentable over Junod in view of Hinckley et al., U.S. Published Application No. 2002-0021278 ("Hinckley") also is improper and should be reversed. Hinckley discloses a device having multiple sensors which sense the manner in which the device is being handled by a user. Context values developed in response to the sensor signals are then used to control the operation of one or more aspects of the device.

Hinckley is simply irrelevant to Junod and irrelevant to the claimed invention. The Junod device is not disclosed as operating differently based on a manner in which it is being handled. As such, there exists no motivation for one skilled in the art to have modified Junod as proposed in the Office action. However, Hinckley further fails to cure the fundamental deficiency of Junod in disclosing the features of the claimed invention

as discussed above. Therefore, even if Hinckley were to be used to modify Junod as stated in the Office action, the claimed invention still would not be achieved.

In particular, claim 7 explicitly requires that the physical characteristic of the radio channel is the tendency of the channel to return to the radio communication unit radio signals transmitted by the radio communication unit. Neither Junod nor Hinckley anywhere discloses or suggests detection of such physical characteristic and therefore do not render claim 7 unpatentable.

Neither does Hinckley disclose any of the limitations of claims 8-12 and 18 regarding reflection, detuning, sensing of transmitted signal levels received by a receiver, change in sensed signal level, or change in sensed signal level greater than a preset amount in a preset time as respectively claimed.

Dependent claim 19 requires controlling of a radio communication unit to transmit dummy signals over the radio channel when the device is in the low-power mode. See p. 6, lines 23-26 of the specification. Neither Junod nor Hinckley disclose such a features. The final rejection relies on paragraphs 0042-0043 and 0046 of Hinckley to support this ground of rejection. However, the cited paragraphs are devoid of any disclosure of transmission of dummy signals during a low-power mode. The Examiner's interpretation of Hinckley's pulsing a transmitter to limit power consumption when a user is out of range, as "transmitting dummy signals" is purely conclusory and is not rationally based or supported by any evidence.

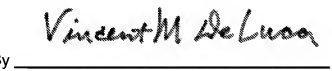
CONCLUSION

In view of the foregoing, claims 1-20 are submitted to be directed to a new and unobvious radio-capable device with low-power and normal operating modes, which is not taught by the prior art. The Honorable Board is respectfully requested to reverse all grounds of rejection and to direct the passage of this application to issue.

Please charge any fee or credit any overpayment pursuant to 37 CFR 1.16 or 1.17 to Novak Druce Deposit Account No. 14-1437.

Respectfully submitted,

NOVAK, DRUCE, DELUCA + QUIGG LLP

By 

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CLAIMS APPENDIX

1. A radio-capable device, comprising:

a data collection unit for collecting data, and having a normal operating mode, in which it is enabled for collecting data, and a low-power mode; a radio communication unit for transmitting over a radio channel data collected by the data collection unit; and

a radio channel sensor coupled to the radio communication unit for sensing at least one physical characteristic of the radio channel, and arranged to cause the data collection unit to enter the normal operating mode if the physical characteristic meets a pre-set threshold.

2. A radio-capable device as claimed in claim 1, wherein the radio channel sensor is arranged to sense the said characteristic by means of at least one antenna of the radio communication unit.

3. A radio-capable device as claimed in claim 1, wherein the data collection unit is capable of collecting user inputs.

4. A radio-capable device as claimed in claim 3, wherein the data collection unit comprises an optical sensor for sensing movement of the device relative to a surface external to the device.

5. A radio-capable device as claimed in claim 4, wherein the optical sensor is fully or partially disabled in the low-power mode.

6. A radio-capable device as claimed in claim 3, wherein the device is a mouse or a trackball.

7. A radio-capable device as claimed in claim 1, wherein the physical characteristic is the tendency of the channel to return to the radio communication unit radio signals transmitted by the radio communication unit.

8. A radio-capable device as claimed in claim 1, wherein the physical characteristic is one or more of reflection of radio signals transmitted by the device, absorption of signals transmitted to or by the device, and de-tuning of one or more antennas of the device.

9. A radio-capable device as claimed in claim 7, wherein the radio communication unit comprises a transmitter and a receiver which share an antenna and the radio channel sensor is arranged to sense the level of signals transmitted by the transmitter that are received by the receiver.

10. A radio-capable device as claimed in claim 7, wherein the radio communication unit comprises a transmitter having a first antenna and a receiver having a second antenna and the radio channel sensor is arranged to sense the level of signals transmitted by the transmitter that are received by the receiver.

11. A radio-capable device as claimed in claim 9, wherein the characteristic is a change in the sensed level.

12. A radio-capable device as claimed in claim 11, wherein the characteristic is a change in the sensed level of greater than a pre-set amount in a pre-set time.

13. A radio-capable device as claimed in claim 1, wherein the device is a wireless device.

14. A radio-capable device as claimed in claim 1, wherein the device is powered by a battery.

15. A radio-capable device, comprising:

a data collection unit for collecting data, and having a normal operating mode in which it is enabled for collecting data, and a low-power mode;

a radio communication unit for transmitting over a radio channel data collected by the data collection unit; and

a radio channel sensor coupled to the radio communication unit for sensing a change in at least one physical characteristic of the radio channel that is indicative of use of the device by a user, and arranged to cause the data collection unit to enter the normal operating mode from the low-power mode upon sensing of said change.

16. A radio-capable device as set forth in claim 15, wherein said change in at least one physical characteristic comprises a change in received signal level.

17. A radio-capable device as set forth in claim 15, wherein said change in at least one physical characteristic comprises a change in received signal level by more than a predetermined amount.

18. A radio-capable device as set forth in claim 15, wherein said change in at least one physical characteristic comprises a change in received signal level by more than a predetermined amount within a predetermined time.

19. A radio-capable device as set forth in claim 15, wherein said radio channel sensor further controls said radio communication unit to transmit dummy signals over said radio channel when said device is in said low-power mode.

20. A wireless device having a normal operational mode and a low-power standby mode, comprising:

a transceiver capable of transmitting and receiving signals over a wireless communication channel; and

a wireless communication channel sensor coupled to the transceiver for sensing a change in at least one physical characteristic of signals received over the wireless channel that is indicative of use of the device by a user, and arranged to cause the wireless device to enter the normal operational mode from the low-power mode upon sensing of said change.

EVIDENCE APPENDIX

None

RELATED PROCEEDINGS APPENDIX

None